UNESCO

ASSESSING INTERNET DEVELOPMENT IN
THAILAND

Using UNESCO's Internet Universality ROAM-X Indicators

Key Findings and Recommendations

Introduction

UNESCO's Internet Universality Concept and Indicators Project

UNESCO'S Internet Universality Indicators (IUI) were adopted by countries around the world in 2018, following 336 online submissions and 46 consultation events held throughout the world between March 2017 and September 2018.[1] Whereas many agencies such as International Telecommunications Union (ITU) adopt a technical and economic approach to the Internet development, UNESCO's approach focuses on human rights and social impacts, while also including economic indicators and technical considerations. The outcome is a holistic assessment that looks at the current state of Internet and its fundamental role in a country's society. It allows some benchmarking with other countries while allowing that, as the Internet becomes more socially embedded each country pursues its own path.

The framework of Internet Universality consists of 303 indicators, of which 109 'core' ones. UNESCO uses the five category ROAM-X model to give a balanced picture of this overall development:

R – that the internet be based on human **Rights**

O – that it is **Open**

A – that it is **Accessible to all**, and

M – that it is nurtured by **Multistakeholder participation**

X – **Cross-cutting** issues

The assessment is primarily based on a narrative for each category, but is carefully structured using 'themes', each of which includes a number of questions and associated indicators. By evaluating a given country's Internet environment against the ROAM-X indicators, the national assessment process aims to:

- Present a substantive understanding of the national Internet environment and policies;

- Assess their alignment to UNESCO's ROAM principles and their contribution to sustainable development;

- Develop policy recommendations and practical initiatives that will enable the country to improve their Internet ecosystem.

Thai Assessment Initiative and Methodology

The IUI assessment for Thailand was carried out between 2018 and 2020. Initial data were collected by Pirongrong Ramasoota, Chulalongkorn University, and Artihit Suriyawingkul, Thai Netizen Network. The final report was developped by the internal expert, Simon Ellis. The project was managed by Misako Ito, Advisor for Communication and Information, and UNESCO Bangkok Office.

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1   *UNESCO's Internet Universality Indicators; a framework for assessing internet development,* Paris (2018), en.unesco.org/themes/internet-universality-indicators

The study was carried out through a combination of interviews with key stakeholders and a review of secondary literature and other sources. In the first instance many reports were consulted in the original Thai language. Wherever possible reference is made to English language versions in keeping with the need to address both a Thai and an international audience. Important comments by government, civil society, and business representatives through several meetings of the multi-stakeholder groups have been included.

The Thai report includes all the core ROAM-X indicators. Thailand should be seen within an Asian context where for example there are certain leading social media platforms that are less relevant than other regions of the world (e.g. Line, Kakao) and where some areas of Thai society Internet developments are more 'advanced' than in many other countries (e.g. consumer electronic payment systems). The indicators are used to bring out areas where Thailand is 'advanced' or action needs to be taken, and to describe the overall character of the Internet in the country.

In Thailand, the Ministry of the Digital Economy and Society (MDES) is responsible for Internet policy with the Electronic Transactions Development Agency (ETDA) as its executive arm while the National Broadcasting and Telecommunications Commission (NBTC) is responsible for broadcasting policy and regulation.

The most commonly cited data source is the National Statistics Office (NSO)/MDES, *The 2018 Household Survey on the use of Information and Communication Technology*. References are also made to NSO/MDES *The 2018 Establishment Survey on the Use of Information and Communication Technology* and some major legal documents such as the 2017 Constitution and the Computer-related Crime Act.

In general, there is no shortage of data to complete the suite of IUI indicators, or to address the needs of policy makers in Thailand. Statistical data are of good quality, there is a wide range of government sources of data, and active civil society organisations both prepare substantive reports and provide online comments on recent events. There are thus very few major 'gaps' in information, but rather some areas in which the relevant data might be extended. Some areas where this applies are:

- More disaggregated data on the use of ICT and the internet by gender, age, ethnicity, disability and other forms of disadvantage;

- A particular lack of data on the use of ICT in schools as well as children and youth attitudes to the Internet and ICT skills of children and youth.

The report has not relied solely on the interviews or report of a single incident or action, but has based its observations on repeated or continuing actions and activities. The conclusions of the report are thus based throughout on more than one observation or authority, and cannot be said to represent a specific personal opinion or 'anecdotal evidence'.

Background of Internet Development in Thailand

Prior to the five ROAM-X categories, the indicator framework proposes a number of contextual indicators to provide the background information of Thailand. These indicators measure the environment for Internet development in Thailand from six dimensions: economy, demography, social development, equality, governance, and ICT development.

Thailand is a middle income country of 70 million people. In common with other ASEAN countries, it has known good economic growth for the last decade or longer, though the current global economic uncertainty is leading to a downward revision in forecasts.[2] The continued economic growth that has seen incomes rise and allowed major expansion in infrastructure including ICTs for both personal and business use. The annual rate of growth has slowed since the 1990s and has also been subject to international crises in 1998 and 2009.[3] The service sector has made an increasing contribution to GDP as Thailand moves away from being purely a centre of manufacturing, as well as being due to the major expansion of tourism. In 2019 tourism accounts for nearly 20% of the GDP of Thailand, while its sharp decline caused by COVID-19 pandemic has severely hit service sector development of the country in 2020.

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2   World Bank data on GDP for Thailand shows annual growth of 3-10% since the 1970s apart from regional/global recession in 1998 and 2009.

3   In 1998 the crisis was the regional Asian financial crisis and in 2009 it was the global financial crisis. At the time of writing all countries will expect another economic crisis because of the impact of COVID-19.

Formal unemployment has remained under 1% for over twenty years. This reflects a large informal economy, with a large population who would be seen as 'under-employed', but it also reflects a society in which people are very entrepreneurial and seek work of any kind. This situation leads to a very wide range of incomes, with households in Bangkok able to afford the latest ICTs and phones while those in rural villages[4] may be working on subsistence agriculture with little use for technology.

The population of Thailand grew steadily from 20 million people in 1950 to 60 million in 2004. Since the 1970s growth has slowed. Economic growth has brought benefits in education and health leading to demographic changes such as later marriage and smaller families. Understood to have passed through the first 'demographic dividend' in the 1990s, Thailand is going through rapid demographic change with one of the fastest 'ageing' populations in Asia. While the younger age cohorts are very familiar with ICTs and Internet use this is a significant problem for the older generation. The World Bank estimates that in 2019 49.3% of the Thai population lived in rural areas.[5] Rural children are attracted to opportunities in the cities. Thus both demographic and economic factors combine to leave a large elderly population, often concentrated in rural areas,[6] with the 'digital divide'.

Another element complicating the demographic profile of Thailand has been international migration, especially within the Southeast Asian region. In Thailand many 'undocumented' migrants may either move to the cities to look for work, or more significantly for this report, remain in provinces that adjoin their country of origin; provinces where online services are seldom used or less available.

In 1990 Thailand had a score of under 0.574 on the UNDP Human Development Index. Over the years this has risen to a score of 0.765 in 2019 when it ranked 77th in the world. Thailand's position is supported by its strong economy, while it is underplayed somewhat by inequality of income and education outcomes. The Thai population aged 25 and over had an average of 8.45 years of school in 2018. This figure is below those of Singapore and Malaysia and similar to that for the Philippines. Data from UNESCO Institute for Statistics indicates a high literacy rate for Thailand.

Equality has an important qualitative dimension. In many formal indicators Thailand scores relatively highly with regard to equalities of income, education, and social participation compared to other countries, and yet inequalities of opportunity between Thais from different provinces and between men and women remain the major source of many social and economic problems faced by the country during the modern era (See full report in particular Categories A and X). Besides, Internet connectivity and services for disabled people and in minority languages are necessary to help meet the needs of vulnerable groups.

Thailand has been through many political changes in recent times involving both change in government structures from a ruling council to a parliamentary system and a royal succession. While there has been some continuity between administrations it can be difficult to judge whether practices that took place even two or three years ago are entirely applicable today. In 2020 the World Justice Project ranks Thailand as 71st in the world with a score of 0.49. Scores are ranked from 1 to 0 with higher scores being more desirable. Thailand ranks highest on 'Order and Security' and lowest on 'Criminal justice'.[7]

Some of the international ICT Development indices have not been compiled for several years (the data used to create the indices begin even older) and do not reflect recent economic and technological developments in Thailand (e.g. the ITU's ICT Development Index has been in abeyance since 2017). But in general, Thailand is classified as one of the leading countries in Asia in mobile connectivity and e-commerce.

Thailand has a very open commercial market. In telecoms this is regulated to a limited number of telecom and broadcasting suppliers. Overall Internet access (hardware and data costs) is among the cheapest in the world. This is not to say that everyone can afford a full 'smartphone' but rather that comparatively speaking Internet access is 'affordable'.

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4   For an extremely thorough long view of Thai village economics see the Thai-Townsend project.

5   https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?end=2019&locations=TH&start=1960&view=chart

6   See various papers in Z. Zhao and A. Hayes edd *Routledge Handbook of Asian Demography* (2017).

7   https://worldjusticeproject.org/our-work/wjp-rule-law-index/wjp-open-government-index/global-scores-rankings

Of course there can be other barriers to Internet access. Survey by the NSO suggests that many people cannot see the use of the Internet. This is likely to reflect a lack of familiarity and a lack of skills. Many children begin using the Internet before the age of ten, again reflecting both Thailand's open society and the need for skills and education in how to best to use a smartphone.

Application of ROAM-X Indicators: Key Findings

Category R – Rights

Theme A – Policy Legal and Regulatory Framework

Theme B – Freedom of Expression

Theme C – Right of Access to Information

Theme D – Freedom of Association and the Right to take part in the Conduct of Public Affairs

Theme E – The Right to Privacy

The Constitution of the Kingdom of Thailand B.E.2560 (2017) and legal framework gives due emphasis to the enjoyment and enforcement of human rights in conformity with international standards. The Constitution clearly includes rights to freedom of expression, freedom of the press and academic freedom. The right of access to information stems from the Official Information Act of 1997.

Thais are generally very active online. The 2018 Household Survey on the Use of ICTs indicates that 32% of those over the age of six used the Internet to upload information in the form of photos, music or text. A number of major civil society organisations have important websites, and there is greater activity of groups and individuals on social media. There is little evidence of systematic blocking of any internet platforms except during periods of major unrest. Ex ante and ex post censorship of online content take place. Provisions of media self-censorship and interference by the state are illustrated in various laws such as lèse majesté, sedition, computer crime, cybersecurity, National Referendum law and broadcasting law.

All Thais are able to take part in online social economic and cultural activity. The Thai government has a range of policies to promote e-government and websites that give access to a wide range of information including draft legislation, while active consultation and participation is rare. There are e-strategies for health and education, but not for employment. The government is enhancing the online presence of cultural heritage sites.

One major gap until present has been in the area of data protection. Both academic and civil society analyses suggest that Thai law does not protect privacy sufficiently as the concepts concerned are not defined precisely enough. To this end, Thailand's Personal Data Protection Act (PDPA) was enacted in May 2019 and has been announced to take effect in June 2022. It is based on the European Union's General Data Protection Regulation (GDPR)[8].

Like many countries across the world, Thailand is grappling with issues of cybersecurity; balancing freedom of expression with the need to protect against slander and 'fake news', as well as the cyber-bullying and harassment of children and women. The Computer-related Crimes Act (CCA 2017, amended 2019) and Thailand's Cybersecurity Act that came into effect in 2019 were introduced to address such issues. Both the CCA and the Cybersecurity Act hold providers responsible for offending content which must be removed within a period between seven and fifteen days.

However, the CCA has been proved particularly contentious as there are concerns that it imposes unnecessary limits on freedom of expression[9] and challenges aspects of people's right of access to information. Law enforcement has intervened to prosecute personal conversations and remarks on social media. Civil society organisations consider that enforcement

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8   https://gdpr-info.eu/

9   For example at the time of writing government has suggested that businesses must keep a record of all Internet activity to protect public security, but this is held to be an infringement of privacy and an administrative burden. See www.bangkokpost.com/learning/easy/1768204/digital-economy-and-society-ministrys-wifi-demand-draws-flak 9 October 2019 and www.bangkokpost.com/tech/1768499/wifi-rule-sparks-call-for-change#cxrecs_s 10 October 2019.

mechanisms do not ensure that there are appropriate checks and balances to ensure the independence of the judicial system. Businesses are concerned that the CCA compels them to monitor and provide to the government details of all online activity by both staff and clients.

Category O – Openness

Theme A – Policy legal and regulatory framework

Theme B – Open Standards

Theme C – Open Markets

Theme D – Open Content

Theme E – Open Data and Open Government

The national regulations have attempted to open the telecoms and data 'market' to a variety of commercial interests, but there is no overarching adoption of the full principles of openness and transparency. The 2007 Constitution of Thailand included the right to receive and to get access to public information, except in cases when certain enumerated interests and rights were protected, but this provision has not been maintained in subsequent versions of the Constitution up to the current 2017 version. In 2013 NBTC implemented regulations to allow other authorized operators to connect to its telecommunications network under reasonable cost, and made it obligatory for the licensed domestic mobile phone network operators to allow other operators to be able to provide service across networks especially in the area where there is no mobile reception, in order to support free market and fair competition, encouraging small providers to enter the market.

The regulation of the communication markets is undertaken by NBTC and ETDA following government guidance and legislation. The Thai telecoms market is dominated by a small number of major providers. Nevertheless, prices are relatively cheap and there is a significant level of competition based on special offers, price structures etc. Users can choose between about 24 Internet service providers (ISPs) reflecting relevant telecoms companies. There are no restrictions preventing users from accessing all major Internet platforms.

Government initiatives to encourage Internet start-ups and innovation have been confined to incentives for business support rather than legal frameworks, with the exception of encouraging universal e-payment. Overall the business environment for internet start-ups is good with a small administrative burden, government support and available finance. Since 2017 e-payment systems in Thailand have been rapidly expanded with the support of government and the Bank of Thailand's Payment Systems Committee. E-payment has become almost universal for everyday transactions. The volume of digital payments has risen by 83% from 2016 to 2018.[10]

Thailand has a full range of copyright protection, though Thailand has not signed the WIPO Copyright Treaty. The Department for Intellectual Property (ipthailand.go.th) is responsible for IP enforcement. Copyright is protected until 50 years after the author's death stemming from the Copyright Law of 1994, but the facility for 'fair use' of copyrighted material is covered by the law and includes use for research, journalism, and personal use. In 2015 it was amended to address certain aspects of digital reproduction and piracy and in 2019 it was amended to allow reproduction of an existing work so that it may be reproduced in media suitable for the disabled (e.g. Brail).[11] Thailand's open and competitive environment and cheap internet costs (i.e. including both hardware and Internet fees) is one reason why take up of open source software is slow.[12] There is some evidence for the use of open source standards in intellectual property, but activities are limited and fragmented.

Commercial analysis sees future business opportunities in e-heath and education, but policy perspectives on each sector differ. In the case of e-health there is a strong national strategy, but it concerns administrative systems rather than patients' access to their medical records. The principal Open Education Resources initiative in Thailand is the Thai Open Education Resources project (oer.learn.in.th) set up in 2015 by the Ministry of Education and the Ministry of Science and Technology.

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10 Bank of Thailand *Payment Systems Roadmap 4* (2019–21), p. 14.

11 2015 https://wipolex.wipo.int/en/legislation/details/15713, 2019 https://wipolex.wipo.int/en/text/491785

12 See https://a4ai.org/affordability-report/data/?_year=2018&indicator=INDEX showing Thailand as the 9th cheapest in the world in 2018.

A consortium of Thai higher education institutions has established Massive Online Open Courses through Thai MOOC (mooc.thaicyberu.go.th). In September 2019 the site was recording 422,930 registrations on 406 courses run by 95 institutions. Several universities have repositories for academic resources.

Government agencies are required to make a certain level of information available to the public. One quarter of individuals and one third of businesses use the Internet to visit government websites, and limited services are available in languages other than Thai. The Thai government has made big strides in making data freely available[13] but users may experience technical problems in accessing and using the datasets, and websites do not facilitate interactive exchange and consultation. QR payment systems have been installed in over 8,000 government offices by 2018, but more offices need to be integrated.

Category A – Accessibility to All

Theme A – Policy, Legal and Regulatory Framework

Theme B – Connectivity and Usage

Theme C – Affordability

Theme D – Equitable Access

Theme E – Local Content and Language

Theme F – Capabilities and Competencies

The Thai government and telecoms providers are actively pursuing universal access of the Internet, especially through programmes to extend access and use in remoter rural areas. In 2017, Thai government started its 'Thailand 4.0' project implemented in line with the 20-Year National Strategy, the 12th National Economic and Social Development Plan, and the Digital Economy and Society Development Plan. These projects all aim at expanding high-quality digital infrastructure throughout Thailand, making it accessible, available, and affordable to everyone. The Pracharat (State of the People) Internet project or village broadband internet project, was divided into two parts, Net Pracharat[14] and Net Chaikob. It is a clear demonstration of the Thai government's commitment to deliver on universal access.

In Thailand, broadband, mobile handsets and smart phones are affordable and available to all sectors of society except for certain remote and rural areas (North and Northeast regions of the country, with further areas of limited use in the far South). The vast majority of the population subscribes to broadband services, and the most common way to access the Internet is through a personal mobile phone. The 2018 Household Survey on the Use of ICTs indicates that 68% of households nationwide connect to the Internet at home. Use of the Internet has expanded rapidly but is most limited in the north and north-east regions of the country, with further areas of limited Internet use in the far south. Slightly less women use the Internet than men. Over 80% of those aged 15–34, but less than 20% of those aged over 50 use the Internet. This clearly argues that Internet training for the elderly should be a priority, especially as the elderly are often concentrated in more remote rural communities when younger people often migrate to the cities to look for work.

The number of domains in Thailand has grown steadily. THNIC is the only official authority charged with register top level domains in Thailand (.th). In March 2020 there were 72,224 registered domain names up from 67,505 in January 2018. Domains can be registered in Thai or Western script, but the vast majority of Thai people and businesses prefer to set up sites in English, indicating that most Thais hope to use the Internet to interact with foreigners. The principal languages available on leading online services are Thai and English, which should cover around 95% of the population. Ethnic and minority language supports are rare on digital services, with an exception of banking services such as ATM machines. Minorities and minority languages are a significant issue especially in the border provinces (north, west, south). The use of local languages such as Hmong, Karen, Khmer, Laotian and others would help these groups' access government services. The southern provinces of Narathiwat, Pattani and Yala have a majority population with both a Malay language Yawi combined with the Muslim religion. The lack of local services suited to the culture of this group has largely contributed to discontent and violence.

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13   See in particular open education resources at oer.learn.in.th, and open public data at data.go.th.

14   http://netpracharat.com

ICT and Internet skills were incorporated in national curriculum which divided into 8 learning areas, but ICT resources, and trained teachers, are not widespread in institutions outside metropolitan areas despite several national campaigns since the 1990s. At the higher education level the ICT curriculum depends on the university and the discipline concerned. There are limited media and information literacy programmes but the public awareness is belied by differences in understanding of the concepts and issues involved.

To meet with international standards, the Thai Government embraces policies and its practice to ensure Internet accessibility for persons with disabilities. NBTC has set up a number of projects to address the needs of the disabled. Unfortunately, the resources devoted to these programmes are limited and the devices offered are out-dated.

Category M – Multi-stakeholder participation

Theme A – Policy, Legal and Regulatory Framework

Theme B – National Internet Governance

Theme C – International and Regional Internet Governance

The development of the Internet has been characterised by multi-stakeholder participation. Assessments of multi-stakeholder participation should consider whether participation is genuinely balanced and includes the interests of all parts of the community not just those that are explicitly and directly concerned with the development of the Internet.

Thailand has a comprehensive National ICT Master Plan. The first master plan for 2001 to 2010 was recognized by ITU as 'an exemplary model for the development of an effective telecommunications/ICT regulatory environment.'[15] Transparency and accountability are included as part of good governance strategy inside Thailand ICT Policy Framework (2011–2020), which also discussed open standards and open government data. In July 2018, the National Legislative Assembly passed the National Strategy Act, which creates a 20-year strategic plan for national development. An early outcome of the government strategy was the 'Net Pracharat' project to bring internet access to rural areas.

There are four principal institutions that oversee government accountability, while their role has been weakened progressively since 2001. In 2019 the Cybersecurity Act specifically established the National Cybersecurity Agency as a public company rather than a government agency thus placing it outside government accountability provisions as well as outside the Labour laws.[16]

The Thai government did establish policies and mechanisms for public participation in national policy processes. However, the evidence showing that consultation has influenced policy is not obvious. Currently local netizens and online activists have been able to use online petitioning platforms and anonymous features like hashtags (#) to connect like-minded individuals and channel their association into public policy planning.

There are a limited number of professional and civil society groups that engage with the national formulation of Internet policy, but their actions are either fragmented or limited in time and did not lead to achieving impacts on Internet policy and governance issues. The development of national Internet policies and legislation falls under the purview of the Ministry of Digital Economy and Society.

In the past Thailand has had active government representation in international meetings regarding the Internet (e.g. ITU Committees, ICANN) but since 2017 attendance has become less frequent involving more junior representation. In another respect civil society members, particularly those related to online rights and freedom are the most active in terms of participation in international fora related to ICTs and the Internet. The first, and last Thai national Internet Governance Forum took place in 2015.

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15 https://www.itu.int/en/ict-sdg-award/2015/Pages/thailand.aspx

16 Manushya Foundation, Thailand's Cybersecurity Act: *Towards A Human-Centered Act Protecting Online Freedom And Privacy, While Tackling Cyber Threats* (2019; 32).

Category X – Cross-cutting indicators

Theme A – Gender

Theme B – Children

Theme C – Sustainable development

Theme D – Trust and Security

Theme E – Legal and Ethical Aspects of the Internet

The category X draws together five themes containing cross-cutting indicators: gender, children, sustainable development, trust and security, and legal and ethical aspects of the Internet. These dimensions are crucial to the effectiveness with which the Internet can be used to enhance rights and development, and need to be considered in any overall assessment of the evolving Internet environment within a country.

In Thailand men and women use the Internet equally and freely. There is no significant gender digital divide in Internet access and awareness, although this does not necessarily mean that websites and applications are equally devoted to women's interests as to those of men. Women are included as members of top management of the main agencies responsible for the Internet in Thailand (ETDA, NBTC, MDES), but they represent less than half of the board members concerned.[17] Women's rights are equally protected in law, but in practice there is evidence of a significant level of online gender-based harassment and violence of women.

In 2017 a national policy framework was passed entitled 'Strategy in Protecting and Safeguarding Children in Online Media Use B.E.2560–2563 (2017–2020)'. The framework aimed to create by 2020 a system and mechanism to promote children's and youth's digitally literacy, as well as safe and creative use of online media based on laws and effective knowledge management. DTAC, a leading telecoms company, has initiated a Safe Internet programme for children. While the goal and main rationale of the framework and programme are worthwhile, their actual implementation especially on the empowerment of youth in their online experience remains to be seen.

ICTs and the Internet have a central place in many national development strategies of Thailand, and people are able to use major online services in their daily life. In 2018 14.1% of those over the age of 19 used government websites, 7.8% used online banking, 7.7% used online shopping, and 0.7% used online educational services. 29.6% of businesses used the Internet, and 4.9% sold goods or services online. A wide range of bodies monitor Internet activity from government, civil society and the private sector. E-waste[18] in Thailand has risen up the national and international agenda, and is key to the recycling of rare metals, but risks the poisoning of both environment and workforce.[19] Both government and telecoms companies have responded to this agenda, but much more needs to be done.

The national cybersecurity strategy mainly presents in Thailand's Cybersecurity Act that came into effect in 2019. Thailand does have a national Computer Emergency Response Team (CERT) named ThaiCERT.[20] Apart from that there are also have few other industry CERTs. The most active non-government CERT is the banking industry's TB-CERT, which is a collaboration of 15 financial institutions with a support from by the Thai Banker's Association.[21] In the last few years there have been several data breaches at both public and private institutions that had caused threats to network and citizen's information security. In general, there has been a positive improvement among Internet users in terms of cybersecurity awareness, especially when it comes to private messaging and financial activities. However, there are still large gaps between awareness and knowing how to actually provide practical protection for oneself and for others.

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17 ETDA: four out of nine Board members are women – ETDA Internet User Profile 2018, NBTC: one out of nine Commissioners in 2018 is a woman - https://www.nbtc.go.th/About/Commissioners/CommitteeProfile54.aspx, MDES: six out of fifteen High-level Executives in 2020 are women - https://www.mdes.go.th/about

18 E-waste – discarded ICT and electronic equipment can be a major source of recycled rare elements, including metals such as cobalt.

19 On e-waste health hazards in Thailand see R. Seith et al 'Self-Reported Health and Metal Body Burden in an Electronic Waste Recycling Community in Northeastern Thailand' J Occup Environ Med. (2019) 61.11, pp. 905–909.

20 https://www.thaicert.or.th

21 https://www.facebook.com/TB-CERT-217387235466490/

According to the Thailand Internet User Behavior 2020 by ETDA, the top 3 internet usage problems were the same as 2019, namely the amount of annoying online advertisements (76.6%), slow internet connection/speed (72.9%), and uncertainty of information reliability (48.9%).[22] There is no apparent reporting mechanism for online harassment or abuse in platforms provided by local online service operators. While reporting function does exist in some local online services, it is meant for reporting of content malpractices – copyright infringement, foul language, sedition, and defamation – rather than abuse or harassment in particular. Notably, statistics with respect to online harassment have been sparsely and periodically collected by different organizations for different purposes.

Recommendations for Various Stakeholders

Government

- **Rights.** The government should seek to minimize restrictions on freedom of expression, including the lese-majeste law, in line with international rights and standards.

- The government should enforce the new Personal Data Protection Act, and reinforce the authority and the independence of the Office of the Personal Data Protection Committee.

- The CCA and Cybersecurity Acts should be amended to allow for 'public interest' defences especially in cases of professional journalistic reporting and to conform to international standards of freedom of the press.[23]

- Government should advance cultural rights by ratifying the UNESCO 2005 Convention on the Diversity of Cultural Expressions and by implementing the UNESCO 1980 Recommendation on the Status of the Artist.[24]

- **Openness.** The Thai government should improve the interactivity of government websites, including those concerned with provision of education resources, public information or open data, and e-government.

- The Thai government will shortly be issuing licenses for 5G services. The range of providers should be chosen carefully to extend market competition and encourage innovation as the country moves towards the 'Internet of Things'.

- Thailand could take further action to extend the use of independent IXPs and adoption of IPv6. This would improve Thailand's ability for international exchange including further development of electronic payment systems beyond local purchases, allowing fuller exploitation of 5G and the 'Internet of Things'.

- The government should introduce a policy of net neutrality in line with international standards to guarantee Thai netizens' quality of service, freedom of expression, and equality of access.

- **Accessibility.** Government initiatives to connect local communities must continue and should take into account the particular needs for local communities such as apps/programmes for access to local market prices or testing of new agricultural products.

- All efforts should be made to reduce costs in rural areas. Subsidies should be provided to the consumer, rather than to the supplier, in order to stimulate increased choice and increased demand.

- The government should continue to support the development of mobile phones and services that address the needs of the disabled and other minorities.

- The use of ethnic minority languages such as Hmong, Karen, Khmer, Laotian and others on digital services should be supported for these groups to access to government services.

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22 Thailand Internet User Behavior 2019–2020, courtesy of ETDA.

23 This was already the recommendation proposed by Article 19 Thailand: *Computer Crime Act; legal analysis* (January 2017).

24 See https://en.unesco.org/creativity/governance/status-artist and related pages on the appropriate conventions.

- Internet training for the elderly should be a priority.

- The government should encourage the National Statistics Office to collect more data through their annual Household Survey on the Use of ICT on access to ICTs and the internet for disadvantaged groups (minorities, disabled), to conduct a full survey of adult and youth ICT skills following current international standards,[25] and ensure all data disaggregated by genders to ensure gender-based analysis.

- ***Multi-stakeholder.*** It is proposed that MDES supports the creation of a national Multi-stakeholder Advisory Board on Internet Governance to guide the development of Internet related policy and regulations.

- The forum on Internet policy should meet at least once a year. Decisions of the meeting would not be binding on any parties, but proceedings of the meeting must be publicly available, so that it will be clear that all parties have heard each other's viewpoint.

- Government websites for public consultation should be more accessible and more metadata should be provided to help users. Tools should be provided to help users submit comments and discuss policy issues with officials.

- The Thai government should continue to participate in international and regional fora regarding governance of the Internet by nominating high-level representation. The government should support the participation of civil society groups in the debates of Internet Governance and in international fora such as ICANN.

- The government should widen consultation on Internet issues to include more stakeholders such as a wider section of businesses to promote e-commerce, and consumer organizations to identify further opportunities for e-governance, build online communities and services to those most in need.

- The government should provide early publicity on proposed Internet developments to allow full debate in the press and other public fora. Proposed developments could be supported by opinion surveys.

- The government should collaborate International organizations such as UNESCO, ITU and other UN agencies to strengthen the multi-stakeholder approach to national Internet governance and policy development, and to support the establishment of the Multi-stakeholder Advisory Board.

- ***X-cutting.*** Laws regarding online behaviour should be used to support gender equality and women's empowerment.

- Government should set an example by moving rapidly towards equal numbers of men and women in decision-making positions.

- There is a notable lack of data about the place of ICTs in schools. This is especially significant since the data are required for global SDG indicators. This should be undertaken by education authorities or the National Statistics Office.

- There is also a lack of data on children's perceptions of Internet, which would be an important source of both for meeting their needs and for identifying vulnerabilities and harassment. This could be undertaken either by the National Statistics Office or telecoms providers.

- New legislation on data protection and e-waste need to be fully and sensitively implemented to improve sustainability and security for online activities.

- Business use of the Internet remains limited, especially amongst smaller companies. The government should pursue programmes to encourage their adoption in a manner that will increase sustainability by, for example, increasing online management and collaboration reducing the need for business travel.

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25   This is required under reporting of Global SDG Indicators 4.4.1 and 4.4.2 based on the EU standard as adopted by both ITU and UNESCO Institute for Statistics.

Civil Society

- **Rights.** Systematic and co-ordinated monitoring of Internet-related rights by civil society would allow more clarity on the impacts of government policy and support the development of evidence-based policy.

- Civil Society should report on implementation of new Data Protection legislation and corresponding breaches of privacy by government and commercial interests.

- Civil Society should report on implementation of new Cybersecurity legislation, the nature of the crises addressed and its independence from the political process.

- **Openness.** Civil Society organizations should advocate for Open Access to knowledge and open solutions to increase community involvement and build on early Thai initiatives in the fields of agriculture, health, and education.

- **Accessibility.** With cheap services and open commercial environment, access issues in Thailand will continue to be concentrated on population groups that become 'left behind'. Net Pracharat has addressed the current lag in rural services, but the forthcoming development of 5G services will create a further divide between metropolitan and rural areas. It will require sustained support from civil society groups to ensure that local communities continue to benefit as technology advances.

- Civil society should support the government and introduce training and familiarization for rural and older people centralizing on apps and services that are particularly useful for their communities (e.g. access to rural markets, farm management systems), and support the development of apps/services in local languages especially in the Northern provinces and southern border provinces.

- **Multi-stakeholder.** Civil society should advocate for and initiate the creation of a national Multi-stakeholder Advisory Board to lead the national discussion on Internet related policy and regulations.

- Civil society groups should coordinate and combine their efforts to provide feedback to Government in upcoming legislation and developing policy.

- Civil society groups should consider how to mobilise support to best ensure that their views reach government, local communities, and other relevant bodies such as relevant industry associations.

- There should continue to be widespread civil society participation in international and regional meetings on Internet issues.

- **X-cutting.** Greater co-ordination of women's groups in civil society will be one way of ensuring that women's rights are upheld. This should be accompanied with more civil society groups adopting an explicit gender based approach to their work.

- Children in Thailand are exposed to the Internet from a very early age. Civil society groups and families require great support in addressing issues of exploitation, bullying and online harassment. This may particularly be the case outside the main metropolitan areas where children may be less prepared to meet these challenges. The extension of child support for online activity to many local and rural areas would help meet these needs.

Private Sector and Technical Community

- **Rights.** The private sector should publish regular reports on government initiatives to hold companies liable for online content, and on government requests for data under the CCA and Cybersecurity Acts.

- The private sector should do its part to ensure that rights enshrined in Thai law are respected:

  ○ Personal data should be available to data owners and request by citizens to see their data, or to have them deleted, should be promptly complied with;

○ International and open commercial standards should be used for transactions to ensure activities are transparent and customers can transfer between platforms;

○ ISPs and other companies should publicise and promote customers' rights to information and inform them about data transferred to the government.

• Private sector broadcasters and online platforms should support freedom of expression by journalists and bloggers.

• **Openness** While Internet access is cheap there is still a need to support Open Source standards development beyond the government programmes in e-payment and transport ticketing. Two potential sectors are:

○ Health. Thailand was an early leader with HospitalOS in 2007.[26] One area for further development would be in public health awareness and sanitation in remote communities.

○ Agriculture. There are several small Open Source farm management systems in development. The potential for remote management is important as many of Thai farms pass from a locally- based older generation to a younger population who are most likely urban based.

• Commercial opportunities identified in the areas of agriculture, health and education should be harnessed to extend the benefits of online services to the more remote areas of the country that are underserved by Internet services, as well as minority communities for whom Thai is not their mother tongue.

• The private sector should take advantage of the competitive advantages offered by Thailand through the adoption of universal e-payment and e-ticketing for public transport by:

○ Extending e-commerce into new businesses and to all local communities;

○ Adapting open source and integrated application to other areas of the Thai economy.

• **Accessibility** Telecoms operators and ISPs should:

○ Subsidise access for disadvantaged people to reduce their costs and stimulate demand;

○ Develop strategies to meet the needs of rural people such as apps/programmes for agriculture;

○ Consider services and devices to increase access for those with minority languages;

○ Promote services and hardware such as smart phones that are easier for use by older people and the disabled; for example speech-based services for the blind and text-based services for the deaf.

• **Multi-stakeholder** Private sector should actively participate in the national Multi-stakeholder Advisory Board to lead the nationwide debate and discussion on Internet related policy and regulations.

• With e-payment systems becoming universal and expanding rapidly, all businesses should consider the impact of government policy, technological change (5G), and the regulatory environment. They should work through professional associations and sectoral bodies to ensure government receives the feedback to maintain a competitive environment.

• **X-cutting** Data demonstrates that children have access to smartphones and the Internet before the age of ten. This leads to many potential issues of online harassment, bullying and exploitation. While government has a role of children's protection, the most direct response will come from front line service providers.

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26 en.wikipedia.org/wiki/Hospital_OS, sourceforge.net/projects/hospital-os/

- In the private sector, use of the Internet for business purposes remains limited, especially amongst smaller companies. Larger companies can help by supporting Internet developments along their supply chain to increase their own efficiency, as well as sustainability.[27]

- It has been suggested that e-waste legislation has not been fully implemented. The private sector should support this development by adopting sustainable company-wide disposal and recycling strategies, and requiring the same of their suppliers.

- Continuing security breaches in private sector companies demonstrate that the private sector needs to adopt stronger technical solutions for personal data.

- Private sector companies, both ISPs and other services, need to be more cognizant of the risks of online harassment suffered by their clients, especially children and women. Online services should be designed to support these communities rather than leaving them open to abuse.

Academia

- **Rights** It will be extremely important for academic studies to evaluate and monitor all aspects of online freedoms in Thailand under the government elected in 2019, especially as concerns the impact of recent legislation such as the Data Protection and Cybersecurity Acts.

- **Openness** Higher Education institutions should support the development of Open Source applications in agriculture, health and education, and further develop the effectiveness of existing applications.

- This report has identified a gap in the provision of universal training in the use of the Internet. Given this and the current move to online learning due to problems associated with the COVID-19 epidemic, there is likely to be a major increase in demand for online learning that could be met by major expansion of relevant MOOCs.

- **Accessibility** Higher education institutions can help achieve universal access in Thailand by researching solutions (technical and social) that can overcome the barriers faced by rural people and disadvantaged groups such as the disabled.

- Local further and higher education institutions have a particular role to play in developing applications for their local communities, including in minority languages.

- **Multi-stakeholder** Academia should actively participate in the national Multi-stakeholder Advisory Board to lead the nationwide debate and discussion on Internet related policy and regulations.

- **X-cutting** There are signs that in practice women still face harassment online and in the workplace. Data are deficient on these issues and more studies and discussions would be welcome.

- There have been a number of studies on the use of ICTs in Thai schools, but these have not formed a necessary base for a realistic systematic provision of ICTs throughout the country. A major national study of ICTs in schools, adopting a realistic view of costs of national roll out and a comprehensive view of requirements would form a firm foundation for future strategy.

- Businesses could benefit from academic analysis on how to effectively implement ICTs and e-commerce in smaller companies, and in supply chains.

- Higher education institutions have an important role to play in identifying the social and economic impacts of technological change such as 5G and the 'Internet of Things'. The results of academic research on technology impacts should be widely publicized to allow full discussion amongst all stakeholders (business, government, civil society).

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27 See for example the joint EU, ILO, OECD project 'Responsible Supply Chains in Asia – Thailand' https://www.ilo.org/asia/projects/WCMS_678345/lang--en/index.htm

- Technical solutions need to be developed to protect personal and commercial data.

- Ethical aspects of the Internet are becoming increasingly fraught balancing freedom of expression against 'fake news' and online harassment. Academic studies have a role to play in setting out appropriate principles that balance Thai cultural traditions, the needs of society and the needs of the individual. Only by building social consensus on such issues will governance be able to move forward with the full support of civil society.

Conclusions

Thailand's Internet development emerges from this report with something of a mixed picture. On the positive side is the commercial environment. In Thailand, the Internet can be accessed relatively cheaply with relatively low costs including phones, computers, phone lines, and Internet access fees. Though there are some barriers, innovation and e-commerce are encouraged by government and finance is available. One current major succes is the use of electronic payment system. As Thailand becomes an early adopter of 5G, one can be sure that it will quickly be adopted and adapted by both businesses and consumers.

On the negative side there are two major issues. Firstly, there is a clear 'digital divide' with people over 50 years of age, rural, and 'outer' provinces being the disadvantaged groups. While efforts are being made to address this, it is an issue that will not disappear without a considerable effort because of a rapidly 'ageing' population and rapidly advancing technology. This requires partnership of government, civil society and the private sector.

Secondly there is a governance issue. While trying to secure safety and naitonal security, the dialogue between government and civil society has been restricted, and there has been increasing evidence of loss of freedom of expression. The online activities of, in particular, children and women require protection but the Internet must equally remain a place of open debate. Dialogues between government and civil society, as well as with academia and the private sector are needed so that regulation can be drafted sensitively to meet the needs of all parties. To address this issue MDES should establish a national forum on Internet policy for consultation.

There have been both big successes and stalled developments in the history of Internet development in Thailand. It is important that the successes are built on and that lessons are drawn from failures. An early success from Thai innovators was the development of Open Source applications. This initiative should be revived as they can be key to reducing costs, and creating adaptations for rural and disadvantaged communities that are not easily served by mainstream commercial services. One current major success is the use of electronic payment system. The momentum from this should not be lost. The platforms created should be used to promote further e-commerce application in business and for consumers. In all of these reforms and innovations higher education institutions have as ever a vital role in technical research and evaluation, identifying the direction of future technological development and its impact on the economy and society. The role of ICTs in the school system also needs major strengthening despite several earlier national initiatives.

This Executive Summary has introduced the key assessment results of Thailand's Internet Universality and major recommendations which are set out in each category under the ROAM-X model for different authorities. Further details on specific themes, questions, indicators and the recommendations combined across different categories are elaborated in the full report. Several indicators in several categories may be duplicated or partly overlapped. Similarly one recommendation may draw on evidence provided in different categories and themes. The full report will provide explanations on how one action can take forward Internet development across several dimensions of the ROAM-X model.

Finally, the IUI guidance suggests that consideration be given to when the assessment should be repeated next time. In the Thailand's context this would best be in the space of three to five years. This would give sufficient time to assess the impact of the new government structures put in place in 2019, as well as the technological impact of 5G. It would also allow sufficient time to lapse for new patterns of behaviour to have been established following the current global COVID-19 epidemic which has 'moved' many activities online.

ASSESSING INTERNET DEVELOPMENT IN
THAILAND
Using UNESCO's Internet Universality ROAM-X Indicators